

WHAT IS CLAIMED IS:

1. A lighting system comprising:

a power supply having a power supply input to receive a first signal
5 having a first frequency, a circuit for converting the first signal to a second
signal, and at least one power supply output to output the second signal, the
second signal having a substantially constant current and a second frequency
distinctly higher than the first frequency;

at least one luminaire having a lamp coupled to a lamp driver circuit, the
10 lamp driver circuit having an input for receiving the output signal from the power
supply and configured to use the received output signal to operate the lamp; and

a flexible cable connected between the lamp driver input and the at least
one power supply output.

15 2. The lighting system of claim 1 wherein the power supply is configured to
maintain the second signal at the substantially constant current throughout a
predetermined range of load impedances present at the power supply.

3. The lighting system of claim 1 further including a power limiting circuit to
20 operatively limit the power of the second signal.

4. The lighting system of Claim 3 wherein the power limiting circuit is configured to
limit power of the second signal to 100 Volt-Amperes.

5. The lighting system of Claim 3 wherein the power limiting circuit includes a fuse.
6. The lighting system of Claim 3 wherein the power limiting circuit is configured to discontinue the second signal upon detection of an excessive amount of output power.
- 5 7. The lighting system of Claim 6 wherein the power limiting circuit is configured to trigger a short circuit of the power supply output transformer upon detection of an excessive amount of output power.
8. The lighting system of Claim 3 wherein the power limiting circuit includes an
10 inherent limiting type protection circuit.
9. The lighting system of Claim 3 wherein the power limiting circuit is located in the at least one power supply.
10. The lighting system of Claim 1 wherein the lighting system is a Class 3 lighting system.
- 15 11. The lighting system of Claim 1 wherein the lamp driver does not include a tank circuit.
12. The lighting system of Claim 1 wherein the power supply is mounted in a ceiling
20 in a first locations and the luminaire is mounted in the ceiling at a second location that is different from the first location.

13. The lighting system of Claim 1 wherein each at least one luminaire is connected to the power supply in parallel.

14. The lighting system of Claim 1 wherein each at least one luminaire is connected to the power supply in series.

15. The lighting system of Claim 1 wherein the first signal is a power line signal received from an ordinary electric power line.

16. The lighting system of Claim 1 wherein the second frequency is approximately 48kHz.

17. The lighting system of Claim 1 wherein the substantially constant current is between .67 A rms and 3.3 A rms.

18. The lighting system of Claim 1 wherein the substantially constant current is approximately 1.3A rms.

19. The lighting system of Claim 1 wherein the second signal has a power factor greater than 0.98.

20. The lighting system of Claim 1 wherein the second signal has a bi-phase voltage.

21. The lighting system of Claim 1 wherein the power supply includes a plurality of output ports, each output port capable of outputting the second signal.

22. The lighting system of Claim 1 wherein the lamp driver is configured to perform at least one of current transformation, lamp ignition, circuit integrity preservation, luminaire preservation, and lamp function control.

23. A lighting system comprising:

a power supply configured to receive a first signal having a first frequency and output a second signal having a substantially constant current and a second frequency distinctly higher than the first frequency;

wherein the second signal output from the power supply is capable of operating a luminaire mounted at a remote location from the power supply.

24. The lighting system of claim 23 wherein the power supply is configured to maintain the second signal at the substantially constant current throughout a predetermined range of load impedances present at the power supply.

25. The lighting system of claim 23 further including a power limiting circuit to operatively limit the power of the second signal.

26. The lighting system of Claim 25 wherein the power limiting circuit is configured to limit power of the second signal to 100 Volt-Amperes.

27. The lighting system of Claim 25 wherein the power limiting circuit includes a fuse.

28. The lighting system of Claim 25 wherein the power limiting circuit is configured to discontinue output of the second signal upon detection of an excessive amount of output power.

29. The lighting system of Claim 28 wherein the power limiting circuit is configured to trigger a short circuit of the power supply output transformer primary upon detection of an excessive amount of output power.

30. The lighting system of Claim 25 wherein the power limiting circuit in inherent limiting type protection circuit.

31. The lighting system of Claim 25 wherein the power limiting circuit is located in the at least one power supply.

32. The lighting system of claim 25 wherein the power limiting circuit, upon detection of an excess amount of output power at at least one of the plurality of output ports, is capable of disabling the at least one of the plurality of output ports while allowing continued operation of the remaining ones of the plurality of output ports.

33. The lighting system of claim 23 wherein the power supply includes a plurality of output ports, each output port capable of outputting the second signal.

34. The lighting system of claim 23 wherein the second signal output from the power supply is capable of operating a luminaire mounted at least twenty feet from the power supply.

35. The lighting system of claim 23 wherein the power supply is capable of being connected to the luminaire via a flexible cable.

36. A lighting system comprising:

a lamp driver having an input for receiving a substantially constant current signal from a remotely located power source and a circuit for using the received signal to operate a lamp associated with the lamp driver, the substantially constant current signal having a frequency distinctly higher than a power line signal.

37. The lighting system of claim 35 wherein the lamp driver is configured to operate only a single lamp.

38. The lighting system of claim 35 wherein the lamp driver is configured to operate a plurality of lamps.

39. The lighting system of claim 35 wherein the lamp driver is configured with end of life protection.

40. The lighting system of claim 35 wherein excessive symmetric lamp voltage will trigger port overload.

41. A lighting system comprising:

a power supply having a power supply input to receive a first signal having a first frequency, a circuit for converting the first signal to a second signal, and at least one power supply output to output the second signal, the second signal having a substantially constant current and a second frequency distinctly higher than the first frequency; and

a lamp driver circuit having an input for receiving the output signal from the power supply and configured to use the received output signal to operate a lamp; and

wherein the lamp driver input is capable of being connected to the at least one power supply output by a flexible cable.

42. The lighting system of claim 41 wherein the power supply is configured to maintain the second signal at the substantially constant current throughout a predetermined range of load impedances present at the at least one power supply.

43. The lighting system of claim 41 further including a power limiting circuit to operatively limit the power of the second signal.

44. The lighting system of Claim 3 wherein the power limiting circuit is configured to limit power of the second signal to 100 Volt-Amperes.

5 45. The lighting system of Claim 1 wherein the power supply is mounted in a ceiling in a first locations and the lamp driver is mounted in the ceiling at a second location that is different from the first location.

46. A method for operating a lighting system comprising:

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receiving, at a first location, a power line signal having a first frequency

converting the power line signal to a second signal, the second signal having a substantially constant current and a second frequency distinctly higher than the first frequency,

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transmitting the second signal to a lamp driver located in a second location remote from the first location, and

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using the second signal received at the second location to operate a lamp.